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TITLE: MANUFACTURING METHOD OF ELECTRODE  
HAVING LESS CURRENT LEAKAGE FOR FORMING LOW PRESSURE  
CHEMICAL VAPOR DEPOSITION TITANIUM OXIDE COAT  
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ABSTRACT:

PROBLEM TO BE SOLVED: To reduce a lead current, by forming a titanium oxide coat on a semiconductor silicon substrate, annealing this titanium oxide coat, and coating an upper-level electrode layer on the titanium oxide coat annealed.

SOLUTION: Titanium oxide ( $\text{TiO}_2$ ) coat 12 is coated on a semiconductor silicon substrate 10. This titanium oxide coat 12 is, for

example, coated on n<SP>+</SP> type silicon substrate or n<SP>+</SP> type polysilicon substrate in a cold wall low pressure chemical vapor deposition reactor and acts as a lower-level electrode for a memory cell capacitor. Next, the coated titanium oxide coat 12 is annealed. This annealing process is performed for about 30 minutes, for instance, at dry gas atmosphere at about 800&deg;C. Then, the titanium oxide coat 12 with its upper-level electrode 14 layer annealed is coated by active sputtering, electron beam or chemical vapor deposition method. By doing this, the leak current can be reduced.

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